

POTTERSBURG BRIDGE

(Upper Darby Bridge)

(Beltz Mill Bridge)

Spanning Big Darby Creek, North Lewisburg Road (CR 164)

North Lewisburg vicinity

Union County

Ohio

HAER OH-125

OH-125

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED DRAWINGS

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service

U.S. Department of the Interior

1849 C Street NW

Washington, DC 20240-0001

HISTORIC AMERICAN ENGINEERING RECORD

POTTERSBURG BRIDGE

(Upper Darby Bridge)

(Beltz Mill Bridge)

HAER No. OH-125

LOCATION: Spanning Big Darby Creek at North Lewisburg Road (County Road 164),
North Lewisburg vicinity, Union County, Ohio
UTM: 17.284518.4458497, North Lewisburg, Ohio Quad.

STRUCTURAL
TYPE: Partridge through truss covered bridge

DATE OF
CONSTRUCTION: 1872

DESIGNER/
BUILDER: Reuben L. Partridge, Marysville, Ohio

OWNER: Union County, Ohio

PREVIOUS USE: Vehicular bridge

PRESENT USE: Vehicular bridge

SIGNIFICANCE: Pottersburg Bridge is one of five surviving Partridge truss covered bridges
in the United States and an excellent example of the work of Reuben
Partridge, a prolific nineteenth century Ohio bridge builder.

HISTORIAN: Researched and written by Lola Bennett, October 2003

PROJECT
INFORMATION: The National Covered Bridges Recording Project is part of the Historic
American Engineering Record (HAER), a long-range program to
document historically significant engineering and industrial works in the
United States. HAER is administered by the Historic American Buildings
Survey/Historic American Engineering Record, a division of the National
Park Service, U.S. Department of the Interior. The Federal Highway
Administration funded the project.

Chronology

- 1820 Samuel Hawkins erects a mill near this site on Big Darby Creek.
- 1823 Reuben Partridge born at Essex County, New York.
- 1835 Beltz Brothers purchase Samuel Hawkins' Mill.
- 1836 Reuben Partridge moves to Marysville, Ohio.
- 1839 North Lewisburg Road laid out as a county road.
- 1866 Reuben Partridge reportedly builds his first bridge in Union County, Ohio.
- 1867 Robert Smith receives a patent for the Smith truss.
- 1869 Robert Smith receives a second patent for the Smith truss.
- 1870 Reuben Partridge's patent application rejected three times.
- 1872 Reuben Partridge amends application and obtains a patent for the Partridge Truss.
- 1872 Reuben Partridge builds Pottersburg Bridge.
- 1886 Columbus Bridge Company incorporated with Reuben Partridge as Vice President.
- 1900 Reuben Partridge dies at Marysville, Ohio.
- 1937 Windows added to Pottersburg Bridge to increase visibility.
- 1949 Pottersburg Bridge reinforced with iron rods and I-beams.
- 1993 Pottersburg Bridge receives a new metal roof.

Introduction

The first documented covered bridge in Ohio was built in 1809 across Beaver Creek in Columbiana County.¹ Historians estimate that there were once as many as 4,000 covered bridges in Ohio, more than any other state in the nation.² Over time, these structures were lost to fire, floods, neglect and replacement. A list published by the state in 1937 indicates that at that date there were 609 covered bridges in Ohio. That number dropped dramatically in the 1950s as covered bridges were replaced with modern spans. Today, Ohio has 135 surviving covered bridges.

Description

The Pottersburg Bridge is a single-span Partridge truss wood covered bridge on poured concrete abutments.³ The bridge has a clear span of approximately 94'. The truss is approximately 15' high from the top of the upper chord to the bottom of the lower chord and 18'-6" wide overall, with a roadway width of 14'-6".

The trusses are framed in the manner patented by Reuben Partridge in 1872. Three 7"x7" timbers bolted together with spacer blocks between them make up the upper chord. Three 6"x10" timbers fastened together in a similar manner comprise the lower chord. A web of diagonal timbers connect the chords: triple 4"x7" compression members angling up (at approximately 45 degrees) toward the center of the bridge intersected by paired 4"x8" tension members angling down (at approximately 60 degrees) toward the center of the bridge. The compression members are seated on angle blocks at their upper and lower ends, while the tension members pass between and are bolted to the members of the chords. At the ends of each truss the chords are connected by 6"x10" vertical posts and 5"x7" diagonal posts. Sometime after 1932, pairs of 1" diameter rods were added above the paired diagonals. These rods pass through the openings between the chord members and are fixed below with angles and nuts. Pairs of 3/4" diameter rods pass at a slight angle between the chords at each panel point.

The lower chords of the bridge rest on top of the poured concrete abutment facewalls. These abutments were presumably poured over the original stone masonry abutments shown in a 1963 photograph.⁴ Every other floor beam is fastened with a plate and hanger system; alternate floor beams are fastened with looped rods. There are eleven lines of 3 1/2"x6" timber and steel stringers laid longitudinally on top of the floor beams. The deck is two layers of 3x10" plank flooring, one laid longitudinally, the other transversely, on top of the stringers. There is some residual asphalt on top of the longitudinal planks.

¹ Miriam Wood, *The Covered Bridges of Ohio, an Atlas and History* (Columbus: Old Trail Printing Company, 1993), p.119.

² In 1970, covered bridge historian Richard Sanders Allen published a conservative estimate of 2,000 covered bridges. More recent historical research has doubled that estimate.

³ Pottersburg Bridge is named for the hamlet of Pottersburg, located north of the bridge.

⁴ Ohio Historical Society, Joseph E. McElroy Collection, P124, Box 1, Union Co. #2.

The upper lateral system is comprised of 6x8" tie beams spaced at 6' and seated on the upper chords, with 4x4" lateral bracing crossing between and notched into the tie beams. The 2x4" rafters frame between the upper chord and a ridge board and are spaced approximately 18" apart. Corrugated metal panels fastened to 1x4" longitudinal wooden purlins (spaced at 2' intervals) on top of the rafters cover the low-pitch gable roof.

Beadboard sheathing with a 4' opening along the length of the bridge at mid-truss height and a 1' opening at the eaves covers the exterior of the bridge. The siding is fastened to horizontal nailers on the exterior faces of the trusses. The portals are straight with squared openings and have 4'-6" shelter panels inside. The gables overhang the approaches by about 4'-6". There is a hooded window opening running nearly the full length of each side of the bridge.

History

In 1820 Samuel Hawkins erected a gristmill near this site on Big Darby Creek. The Beltz Brothers purchased that mill in 1835 and continued its operation until about 1880.⁵ Present day North Lewisburg Road (originally part of Holycross Road) was laid out as a county road in 1839. A bridge was built here at an unknown date prior to 1870, when the crossing appears on Andrew Mowry's "Map of Union County, Ohio." No records have been found concerning that bridge.

Some modern sources state that the Pottersburg Bridge was built in 1868; however, documentary evidence strongly suggests that the bridge was built in 1872-73. In April 1872, the Union County Commissioners published a notice to bridge builders in the *Marysville Tribune* for construction of a bridge "of 90 feet span, across Big Darby Creek, at W.H. Crary's, in Allen township." Mowry's 1870 map of Union County shows W.H. Crary's property just upstream of the present bridge site.

On May 16, 1872, the Union County Commissioners received bids for a number of bridges and awarded the contract for the bridge "at Crary's" to R.L. Partridge for \$12.50 per foot. The masonry contract was awarded to Bercupile & Snell for \$6.50 per perch.⁶ No further details of the bridge construction have been found in local newspapers or Union County Commissioners records.

In 1937 windows were added along the length of the bridge to improve visibility. Extensive repairs were made on this bridge in the fall of 1949. Three 6"x10" I-beams were placed under each corner of the bridge, and the truss was strengthened with metal rods. Presumably, a metal roof replaced the wood shingle roof that appears in a 1930s photograph.⁷ A new metal roof replaced the older metal roof in 1993. The present concrete faces on the stone abutments were added at an unknown date since 1963.

⁵ Because of its proximity to the mill, the bridge at this location was sometimes referred to as Beltz Mill Bridge, but was more commonly known as Big Darby Bridge or Pottersburg Bridge.

⁶ Union County Commissioners *Records*, Volume 3 (1862-1873), p. 379.

⁷ 1963 photos of Pottersburg Bridge show a metal roof. Ohio Covered Bridge Committee Records [MSS 878], Ohio Historical Society, Columbus, Ohio.

While the county's other bridges have recently been rehabilitated, the Pottersburg Bridge has received only routine maintenance. According to the Union County Engineering Department, the Pottersburg Bridge is scheduled for replacement within the next two to three years due to the heavy volume of traffic it carries. Plans are presently being reviewed for a new covered bridge at this site. The historic Pottersburg Bridge will be moved and preserved in a county park.

Design

Reuben L. Partridge was born in Essex County, New York, in 1823 and came to Marysville, Ohio, following his father's death in 1836. As a young man, he learned the trades of carpentry and wagon making.⁸ Reuben Partridge built his first bridge in 1866 and continued building bridges for the rest of his life. He built most of Union County's bridges in the mid- to late-nineteenth century.⁹ At least some of these were covered bridges using a truss he patented in 1872. The geometry of Partridge's truss was similar to a truss patented by Robert W. Smith of Ohio in 1867, but Partridge's patent claim was for a special metal bearing shoe, or "foot piece," for the compression members that reduced the amount of material required for the chords and the overall cost of construction.¹⁰

The patent office rejected Partridge's application three times citing Smith's patent as the primary reason.¹¹ His final application included a letter from the Union County Board of Commissioners, stating "We think it superior to 'Smith's Truss,' its peculiar combination is such that it can be constructed for less money."¹² On June 11, 1872, Reuben Partridge received U.S. Letters Patent No. 127,791.¹³ It is not known whether Partridge ever actually used the specified metal foot piece in his bridges, as none of the surviving examples of his work has this detail. Instead, they used simple wooden bearing blocks for the compression members. In addition, the Pottersburg Bridge has three timbers in the lower chord, which Partridge had argued was a drawback of Smith's design.¹⁴

While Partridge's contribution to engineering technology remains questionable, he clearly was a talented and prolific bridge builder who helped keep the tradition of covered bridge building alive well after the introduction and mainstream acceptance of metal truss bridges. Union County Commissioners' records indicate that Partridge was paid for building at least thirty-three

⁸ Willela S. Kennedy, "Reuben L. Partridge," *Journal Tribune* (Marysville, OH), March 22, 1962.

⁹ Beers, *History of Union County*, 1883, p.127.

¹⁰ For more on Robert W. Smith see HAER No. CA-313, Powder Works Bridge.

¹¹ David A. Simmons, "Unusual Patent History Represented by Franklin County Bridge," *Ohio County Engineer* (Winter 1991), p.14-15.

¹² Union County Commissioners, letter, March 15, 1872. David Simmons, Notes from U.S. Patent Office Records, RG 241, National Archives, Washington National Records Center, Suitland, Maryland, 1990. (David Simmons files, Ohio Historical Society, Cleveland, Ohio).

¹³ Reuben Partridge, U.S. Letters Patent No. 127,791, June 11, 1872.

¹⁴ Simmons, "Unusual Patent History Represented by Franklin County Bridge," p.15.

bridges between 1860 and 1880. Presumably many more are not clearly identified in existing records.¹⁵

On July 17, 1900, Partridge was fatally injured while demolishing a covered bridge in Taylor Township. He is buried at Marysville, Ohio.

The Pottersburg Bridge is one of only five surviving Partridge truss bridges in the United States, all of which are located in Ohio:¹⁶

35-80-03	Treacle Creek (Culbertson) Bridge	Union County, OH	1868	94' Partridge truss	R.L. Partridge
35-80-02	Spain Creek Bridge	Union County, OH	1870	64' Partridge truss	R.L. Partridge
35-80-01	Pottersburg (Upper Darby) Bridge	Union County, OH	1872	94' Partridge truss	R.L. Partridge
35-80-04	Bigelow (Little Darby) Bridge	Union County, OH	1873	102' Partridge truss	R.L. Partridge
35-25-03	Bergstresser (Dietz) Bridge	Franklin County, OH	1887	134' Partridge truss	R.L. Partridge

¹⁵ According to an obituary published in the *Marysville Tribune* on July 19, 1900, Reuben Partridge built at least 200 bridges in Union County and surrounding region.

¹⁶ Another Partridge truss covered bridge, Reed Bridge (1884), spanned Big Darby Creek in Darby Township, Union County, until it collapsed on August 19, 1993.

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